

REMARKS

The present amendment is in response to the Office Action dated March 11, 2004. Claims 1-58 and 60-65 are now present in this case. Claims 7, 11, and 58 are amended. New claims 64 and 65 are added.

The Examiner will kindly note that representation in this matter has been transferred to another attorney. A revocation/substitute power of attorney will be filed in the near future. A change of address and request to amend attorney docket number are enclosed herewith.

This Amendment is in response to the Office Action dated March 11, 2004. The applicants wish to express their appreciation to the Examiner for his indication that claims 8 and 58 would be allowable if amended to overcome a rejection under 35 U.S.C. § 112, second paragraph. The relevant elements of claim 8 have been placed in independent form as claim 65. Claim 58 has been amended. Claim 11 has also been amended to overcome a rejection under 35 U.S.C. § 112, second paragraph. Claim 7 has been amended only to correct a minor typographical error.

Claims 29, 32, 37-39 and 41 are rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 5,867,485 to Chambers et. al. The applicants respectfully disagree with the assessment of Chambers and its applicability to these claims. The Office Action states that all OFDM systems inherently use symbols, which are detected by a symbol-by-symbol manner at the receiver and that Chamber inherently discloses transmitting without a training symbol "since there is not mention of an OFDM training symbol being used in the reference." (See p. 4 of Office Action.) This is not correct. A typical OFDM signal requires a transmitter to transmit a series of "training symbols" that have known content. The OFDM receiver uses the training symbols with known content to establish correct timing to thereby enable the receiver to decode subsequent unknown OFDM symbols. However, the novel approach taken by the OFDM receiver described in the pending application allows symbols to be decoded independently of one another. That is, an OFDM receiver designed in accordance with

the present description can receive and properly decode a single OFDM symbol. The recitation in Claim 29 that the receiver "detects said OFDM signal in an OFDM symbol-by-OFDM symbol manner" refers to the ability of the OFDM receiver to independently receive and decode individual OFDM symbols. This is not known in the prior art and is not inherently part of the system of Chambers.

Furthermore, the detection of OFDM symbols without a training symbol is not known in the art. Thus, Chambers could hardly be expected to describe something that was previously unknown. The failure to disclose a previously unknown technique cannot be interpreted as an inherent disclosure of detection of OFDM symbols without the use of a training symbol. Indeed, Chambers does not disclose any details of OFDM technology but simply states that the radio frequency spectrum in the network of Chambers is close to the radio frequency spectrum used by wireless PCS devices and that known PCS devices could be modified for use in the Chambers system. The only mention of OFDM occurs when Chambers states that "this could lead to implementation of CDMA, OFDM, GSM or TDMA type transmission multiplexing of signals." The mere mention of OFDM cannot be held to disclose all aspects of OFDM, such as the detection of OFDM symbols without a training symbol, such as recited in Claim 29. Accordingly, Claim 29 is clearly allowable over Chambers.

Claims 30-41 are also allowable in view of the fact that they depend from Claim 29, and further in view of the recitation in each of those claims. For example, Claim 32 recites the use of OFDM symbols comprising "data and detection aiding information that is used by said receiver to demodulate said OFDM signal." As noted above, conventional OFDM technology utilizes training symbols. The use of data within the OFDM symbol that aids in detection is not inherent in Chambers since the detection of OFDM symbols without a training symbol is not inherent to OFDM systems.

Claims 1, 5, 6, 9-12, 50, 54-57, and 60-63 are rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Chambers and PCT Publication No. WO 98/26520 to Wickman et. al. The applicants kindly disagree with the assessment of Chambers and Wickman and their applicability to the claimed invention.

With respect to Claim 1, the Office Action correctly states that Chambers does not disclose base stations having a coverage between one and ten miles nor does Chambers disclose consumer premise equipment (CPE) having “an antenna deployed internally within the premise where the CPE is located” as recited in Claim 1.

The Office Action states that Wickman discloses “base stations having a coverage range between 1 and 10 miles, or less than 10 miles” and that Wickman also discloses an internally deployed antenna. This is incorrect. Wickman is directed to a broadband radio access system that combines elements of a high frequency system (referred to as an ML-system) and a microwave system (referred to as an MK-system). Wickman describes the characteristics of each system in Table 1 on page 3. The high frequency ML-system is limited in range to typically less than five kilometers due to high propagation attenuation and attenuation by rain (see page 1, line 35-page 2, line 2). In contrast, the MK-system described by Wickman typically has a range less than 50 kilometers (see Table 3). The Office Action quotes page 7, line 20 of Wickman as teaching the claimed coverage range between one and ten miles. However, Wickman is describing the MK-system and states that the range is “a few tens of kilometers.” A few tens of kilometers would correspond to the range of less than 50 kilometers stated in Table 3 and restated at page 9, line 12. Thus, the Wickman system is directed to a microwave distribution system with a range in excess of 10 miles that results in “a coverage of a large area.” (See page 7, lines 20-21.) Such a distribution system is not contemplated by the wireless metropolitan area network (MAN) recited in Claim 1. As described in the specification at page 5, fixed wireless metropolitan area networks (MAN) have a coverage range between 10-30 miles, which is the same coverage range described in Wickman. However, the larger coverage area of the prior art creates difficulties in frequency reuse. This problem is addressed by the system described in the pending application.

Furthermore, Claim 1 recites that each CPE has “an antenna deployed internally within the premise where the CPE is located.” The Office Action cites page 11, lines 34-36 of Wickman as suggesting use of internal antennas. This is not

correct. That section of Wickman states that "because communication with the subscriber is made on microwave band, often also 'not-line-in-sight'-connections can be established." It should be noted that an internal antenna and line-of-sight (LOS) communication systems are two different factors. Claim 1 does not require an LOS implementation nor does it require a non-LOS implementation. Similarly, the LOS implementation of the ML portion of the Wickman system does not inherently require an external antenna nor does the possible non-LOS communication in the MK portion of the Wickman system in any way suggest the use of an internal antenna. In the same passage cited in the Office Action, Wickman states that with use of a non-LOS system "low buildings in many cases can be covered in spite of surrounding high vegetations, if any." (See page 12, lines 1-2.) There is no suggestion of a CPE "having an antenna deployed internally within the premise where the CPE is located" as recited in claim 1. It is further noted that Figure 1 of Wickman shows only external mounting of the antennae in the MK (i.e., microwave) portion of the Wickman system.

Thus, neither Chambers nor Wickman, taken alone or in combination, suggest a MAN network operating in a frequently range less than 10 gigahertz having a range with "a radius of more than 1 mile and less than 10 miles" and a plurality of CPE with each CPE "having an antenna deployed internally within the premise where the CPE is located," as recited in Claim 1. Accordingly, Claim 1 is clearly allowable over the combination of Chambers and Wickman. Claims 2-8 are also allowable in view of the fact that they depend from Claim 9, and further in view of the recitation in each of those Claims.

Claim 9 is directed to a fixed wireless access system and recites *inter alia* a CPE unit that "includes a host interface connectable to a host, a second radio frequency interface enabling non-line-of-sight radio frequency transmission to said base unit and non-line-of-sight radio frequency reception from said base station unit." The Office Action appears to state that Wickman suggests such a system. However, Wickman teaches directly away from the invention recited in Claim 9. Wickman describes an implementation of an MMDS-system operating around 2.5 gigahertz (see

page 7, lines 3-5). Wickman further states that “the spectrum from MMDS is limited.” (See page 7, line 18.) To achieve acceptable capacity on limited bandwidth, Wickman discloses the use of 64 QAM-modulation and further states that a return channel within the present MMDS frequency band would result in interference with the downlink making the entire system difficult to implement. (See page 7, lines 34-36.) Indeed, Wickman states that “These facts, in addition to the difficulty to get a good frequency utilization factor with a surface covering macrocellular network at MMDS-frequencies, does exclude a (broadband) return channel within the band.” (See page 8, lines 3-7.) Instead, Wickman discloses “a return channel via a separate frequency band or preferably via other media, for instance the telephone line or DECT.” (See page 8, lines 1-3.) Thus, Wickman teaches directly away from a system in which a CPE transmits in a non-line-of-sight radio frequency transmission to the base station. Further, Claim 9 further recites that the “first and second radio frequency interfaces utilize orthogonal frequency division multiplexing (OFDM) to transmit and receive said information packet.” As noted above, the end user in Wickman transmits data to a central location via a separate channel, such as a telephone line. Such implementation does not teach or even suggest the use of OFDM. Accordingly, Claim 9 is clearly allowable over Chambers and Wickman. Claims 10-16 are also allowable in view of the fact that they depend from Claim 9, and further in view of the recitation in each of those Claims.

Claim 50 is a method claim for establishing communication between a CPE and a plurality of base stations. Claim 50 recites user-installing of CPE unit within a premise “wherein said CPE unit is completely contained within said premise.” Claim 50 further recites “automatically registering with one of said plurality of base station units by radio frequency communication upon said CPE unit being user-installed.” As previously discussed with respect to Claim 1, the combination of references cited in the Office Action do not teach or suggest a CPE unit that is completely contained within the premises. As noted above, an internal antenna is neither taught nor suggested by Chambers and Wickman, taken alone or in

combination. The Office Action states, on page 8, that the subscriber unit 16 of Chambers "must inherently automatically register with the remote node transceivers 14 in order to be able to communicate with the remote node transceivers 14." This is not correct, nor is it recited in Claim 50. Claim 50 recites automatic registration "upon being user-installed" while the Office Action appears to be referring to registration of the Chambers system for subsequent communication. The subscriber unit of Chambers may require significant installation time, as is often the case with systems, such as satellite TV receivers. The directional antenna (see Column 7, lines 61-62) inherently requires aiming upon installation, which precludes the automatic registration, as recited in Claim 50. As previously noted, Wickman does not teach or suggest a CPE unit that is completely contained within a premise, nor does Wickman teach or suggest registering a CPE with the base station by radio frequency communication. Indeed, as previously discussed, the link from the subscriber to the base station in Wickman is accomplished via alternative communication, such as a telephone link. Accordingly, Claim 50 is clearly allowable over Chambers and Wickman. Claims 51-57 are also allowable in view of the fact that they depend from Claim 50, and further in view of the recitation in each of those Claims.

Claim 60 is directed to a fixed wireless system having a plurality of CPE units and reciting *inter alia* "a plurality of base station units, wherein each of said plurality of CPE units communicate with at least one of said plurality of base stations via radio frequency and wherein said plurality of CPE units and said plurality of base station units are arranged in a sectorized configuration, wherein each sector has up to 250 CPE units and wherein each sector has a radius of less than ten miles." The Office Action states that Figure 1 of Chambers combined with Column 7, lines 1-4, disclose a sectorized system in which each sector has up to 250 CPE units. Although the specification states that each microcell have at least 3 or 4 radiating sectors, it is not at all clear from Figure 1 that each sector can accommodate up to 250 CPE units. The literal interpretation of Figure 1 as showing six subscriber homes does not suggest that each sector of a base station can accommodate up to 250 CPE units. Indeed, a literal

interpretation of Figure 1 shows three microcell transmitters, each with three sectors, for a total of nine sectors which means that some sectors have no CPE units. Furthermore, Figure 1 appears to suggest that some subscriber homes have no coverage at all, while others may be in communication with more than one microcell. Such a literal interpretation of Figure 1 is inappropriate. Claim 60 is intended to provide limitations on the size of sectors and the ability to accommodate multiple CPE units within the sectors. Each sector has a radius of less than ten miles, but can accommodate up to 250 CPE units. Chambers does not teach or suggest sectors having a radius of ten miles and accommodating a large number of CPEs, as recited in Claim 60. As noted above with respect to Claim 1, the system of Wickman does not have a sector with a radius of less than ten miles. The typical coverage range in Wickman is approximately 50 kilometers. Accordingly, Claim 60 is clearly allowable over Chambers and Wickman. Claims 61-63 are also allowable in view of the fact that they depend from Claim 60, and further in view of the recitation in each of those claims.

Claims 17-19, 21-25, and 28 stand rejected under 35 U.S.C. § 103(a) over Chambers combined with U.S. Patent No. 6,046,992 to Meier et al. Claim 17 is directed to a wireless access system having a plurality of base station and recites *inter alia* "a consumer premise equipment (CPE) unit, wherein said CPE unit communicates with at least one of said plurality of base station units via radio frequency and is connectable to a host, wherein upon connection of said CPE unit to said host said CPE unit learns a high-level internet protocol address and a low-level physical address of said host by observing communication traffic of said host." It should be noted that the host unit in Chambers is a PC, but there is no suggestion in Chambers of any need for learning an internet protocol address of physical address. Thus, there is no teaching in the references to suggest the combination stated in the Office Action. The system of Meier is related to computer networks, but does not suggest a microwave distribution system in which a host may be connected to the CPE in which the CPE automatically learns the address of the host by observing communication traffic of the host. Thus, Claim 17 is believed allowable over Chambers and Meier. Claims 18-28 are also allowable in view


of the fact that they depend from Claim 17, and further in view of the recitation in each of those claims.

In view of the above amendments and remarks, reconsideration of the subject application and its allowance are kindly requested. If questions remain regarding the present application, the Examiner is invited to contact the undersigned at (206) 628-7640.

Respectfully submitted,

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